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ABSTRACT

The COMP-Ident Assessment Format for developing assessment and intervention procedures to follow up initial screening of preschool handicapped children in rural areas is the second stage in the HICOMP Project. Linkage between assessment and programming includes describing the child's current levels of functioning in all areas; specifying long- and short-range educational goals; and selecting evaluation methods to assess the child's progress and program effectiveness. HICOMP uses a competency-based approach, in which traditional developmental scales are used as criterion referenced and norm referenced measures to sample skills in the areas of communication, self-care, motor development, and problem solving. Assessment is linked to an individualized instructional plan, by determing specific skills and behavioral strategies which constitute the initial goal-setting plan for each child. After instructional strategies have been implemented, each child's progress is monitored by curriculum-imbedded checklists and behavioral analysis. The competency-based, developmental-task methods achieves four objectives: (1) merging assessment with programming; (2) ensuring similarity between sampled and targeted behaviors; (3) providing functional analysis of each child's range of capabilities; and (4) providing a varied basis for monitoring skill acquisition. (MH)

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THE COMP-IDENT ASSESSMENT FORMAT

A Descriptive Manual and Comprehensive Process of Linking Screening, Assessment, and Programming for the Handicapped Preschooler

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TABLE OF CONTENTS

page

PREFACE 1

Chapter

1 FROM ASSESSMENT TO INTERVENTION 4

Developmental Assessment and the Delineation of Domain-Specific, Curriculum Entry Points 5

2 LINKING SCREENING AND PROGRAM INTERVENTION 7

3 A NOTE ON EARLY IDENTIFICATION AND THE FAMILY 11

4 THE HICOMP ASSESSMENT FORMAT 14

General screening procedure 14

Comprehensive Developmental Assessment for Educational Programming 17

Forging an Assessment/Curriculum Linkage for the Handicapped Preschooler 21

Practical Value of the Flow/Linkage Procedure 24

Supporting Data for the Linkage Procedure 29

Conclusion 30

REFERENCES 31

APPENDICES 34

A Currently Available Assessment Methods 35

B Report Forms Building Assessment/Curriculum Linkage 37

PREFACE

The COMP-Ident component of the HICOMP Project focuses upon the identification, screening and continuous assessment of multihandicapped preschool children for the purpose of providing appropriate and individualized educational programming. The thrust of the component is therefore the operationalization and systemization of a "link" between screening, assessment, and program planning. The COMP-Ident Find/Screen Planning Package (Laub, Kurtz, & Worobey, 1978) which was written for the preschool administrator or community organizer desiring to determine which children between six months and six years of age are in need of special services, described how to conduct a general screening in a rural area. This manual, the COMP-Ident Assessment Format, attempts to pick up where that manual leaves off, but of course can be utilized without the other manual. In other words, this manual is designed to serve as a guide to the interventionist who has already located a population of children who may benefit from services, whether by parent initiation, professional referral, or screening.

Early Identification and Assessment

The Bureau of Education for the Handicapped has proposed a five-step child identification model consisting of: a) public awareness, b) location of potentially handicapped children, c) diagnoses and evaluation, d) delivery of appropriate educational and related services, and e) reassessment of the children's needs and the services that were or are provided.

By finding and screening children, the early identification process initiates a sequence requiring the cooperation of many concerned

professionals and community workers, as well as families. Screening, however, is not a substitute for more thorough assessment nor a reliable means of diagnosis in and of itself. Figure 1 illustrates the HICOMP model of early identification, and is drawn as an hourglass to remind us of that important and complex factor, time. While admittedly, this model suggests a flow from top to bottom, from awareness to normalization, there is not only the shifting of sands within the glass, but the necessity that it be turned occasionally to sift or move some children to different and currently more appropriate services, and to newly recognize the needs of children previously funneled out as not then notably requiring services.

Such functions as assessment are appropriately continuous through time, rather than "before" or "after" such functions as screening. It is assumed that the reader shares this awareness that human services must be viewed dynamically in terms of long range planning. Nevertheless, time is not merely an expanse: one must work in the present for each child as (s)he is at this point in time.

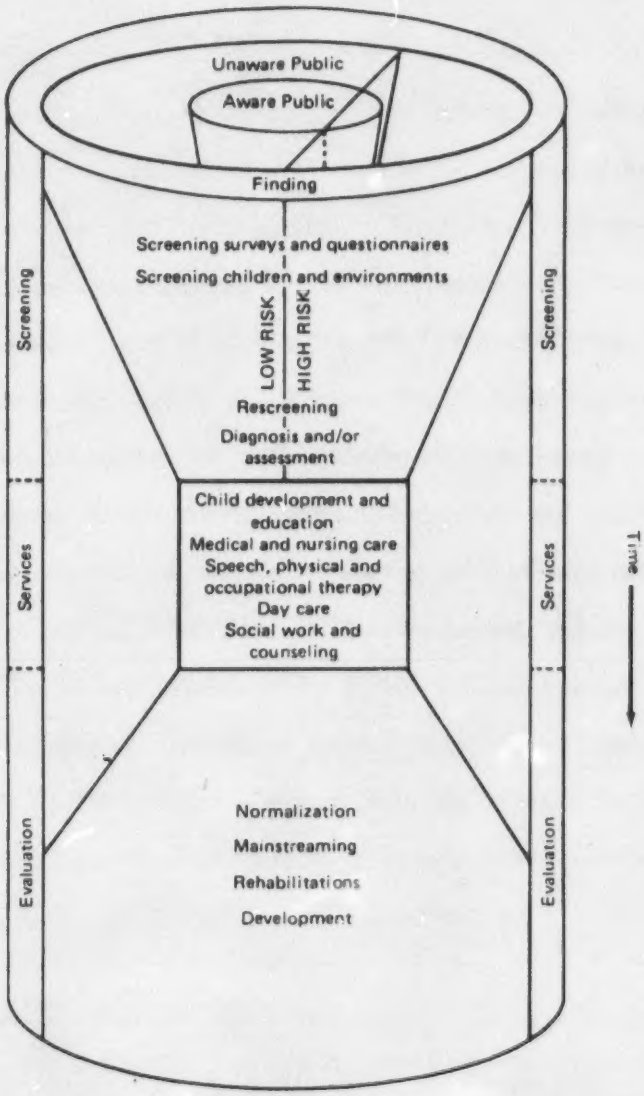

Figure 1. The HICOMP model of early identification

CHAPTER ONE

FROM ASSESSMENT TO INTERVENTION

The process of assessment and intervention with handicapped and non-handicapped preschoolers is both complex and highly interrelated and, therefore, demands the formulation of systematic procedures to ensure flow and linkage from diagnosis to educational programming.

Traditionally, there has been a voiced interest in the need for early identification and assessment of developmental problems but little direct concern with establishing individualized educational plans upon such assessments. Therefore, the crucial "link" between assessment and intervention has been bypassed. The result is that preschool teachers and early childhood specialists have received little direct, practical guidance from psychologists and other diagnostic specialists in designing individualized goal-plans for the preschool child.

Without systematic goals and practical procedures, our assessment methods are often nebulous, haphazard, and ill-suited to fit our needs. This absence of focus and continuity contributes both to misuse and considerable wasted effort. However, with the inception of Public Law 94-142, psychologists, early childhood specialists, special education personnel and parents must integrate their efforts in a systematic way to construct meaningful assessment/curriculum linkages for each child in order to:

1. Describe a child's current levels of functioning in all functional areas.

2. Specify short and long term educational goals and objectives.

3. Select appropriate evaluative procedures to monitor both child progress and program effectiveness.

In addressing the need for imbedding assessment within intervention, the diagnostic component of the HICOMP Project has had as its focus the following:

A. Formulating procedures to ensure a flow of operations from screening to assessment to individual educational programming.

B. Developing and evaluating agency-training formats and community-based options for conducting mass infant/child screenings.

C. Devising comprehensive methods of "linking" developmental diagnostic results to individualized educational goal-planning using both traditional developmental scales and criterion-based curriculum measures.

D. Providing a multi-method, multi-factor approach for implementing formative and summative evaluation of child progress and program effectiveness using a combination of norm-referenced, criterion-referenced, observation and interview-rating measures.

Points A and B are the focus of the COMP-Ident Find/Screen Planning Package. Points C and D portray the diagnostic-intervention process which is detailed in the subsequent sections of this manual.

Developmental Assessment and the Delineation of Domain-Specific, Curriculum Entry Points

The HICOMP format advocates a competency-based approach to assessment and programming. In this conceptualization, traditional developmental scales are perceived as criterion-referenced measures which sample behaviors similar to those included within the curriculum sequence. Therefore, performance on this series of developmental "target" tasks does reflect functional capabilities, and thus helps to delineate the appropriate entry points for children within each domain of the

COMP-Curriculum: Communication, Own-care, Motor, Problem-Solving (Forsberg, Neisworth, & Laub, 1977).

In order to operationalize this "link" between developmental assessment and educational programming, a battery of developmental measures which sample behavior within each domain of the curriculum is utilized to functionally analyze the child's acquisition of crucial developmental skills. More focused skill analysis is then achieved through the administration of various language and cognitive measures which are appropriate in terms of age, handicap, and developmental skill level.

On the basis of the child's performance on the various tasks, his or her highest level of skill acquisition in each domain is determined. Based upon the child's failure in demonstrating crucial developmental skills, (s)he is placed at appropriate points within the curriculum which focus upon establishing those skills which are necessary for completing the task which (s)he failed.

After programming and training have been provided in deficient developmental areas, the child's individual progress is monitored by curriculum-based checklists and behavioral analysis. More global assessment by norm-referenced developmental scales then serves primarily to provide supporting evidence of child progress.

CHAPTER TWO

LINKING SCREENING TO PROGRAM INTERVENTION

Comprehensive multidisciplinary or interdisciplinary assessment is the usually presumed follow-up to screening. However, since assessment can be conceived as a continuing function which includes *in situ* observation and content-referenced scales for teacher and parent use, screening might be followed more quickly by program placement than by thorough assessment. This is especially possible when the services are noncategorical (i.e., available to children presumed normal, as well as to children requiring special intervention) since stigma can thus be minimized and transitions made fluid between normalcy and abnormality. Even where services are categorical, the programmatic follow-up to screening might precede diagnosis if the latter was delayed, since judgments made by screening must always be understood as reversible. Needless to say, however, parents and others unfamiliar with the nature of screening will require considerable guidance if this atypical procedure is followed.

Whether screening or assessment immediately precedes programming, efforts should be made to usefully link previous testing to intervention. The follow-up linkage efforts might include a) carefully determining whether children referred to services after screening actually receive these recommended services, b) accompanying letters of referral with intelligible and informative reports, and c) making recommendations concerning how to begin services. The first category might include asking both the family and the agency to seek contact with each other, arranging for a third party to provide travel for the family to the

agency, making contact with the agency via the telephone or in person, finding an agency close to the family, and solving such circumstantial problems as limited finances. The second category might include solving time lags in formalizing reports, avoiding sending uninterpreted test results, avoiding professional jargon, learning new (others) professional jargon, improving basic writing skills, and specifying accountability. The final category recommends that sources of referral translate their requests for services into specifics and provide referral recipients with beginning points. For example, a request that it be determined whether a child hears only loud sounds is more helpful than a hearing assessment. A suggestion that a child needs to learn to climb stairs using the railings is more helpful than a recommendation for gross motor programming. As will be later illustrated, a very precise way of providing the latter kind of linkage is possible.

Even many professionals do not understand our limited predictive ability from infancy to maturity and, thus, fail to recognize that even diagnoses based upon our best psychometric tests must themselves be seen as possibly reversible, especially in borderline cases.

Stott and Ball (1965) had to conclude after their careful review of infant testing since 1932 that "mental tests administered in the first year of the child's life are of no practical value in predicting later tested intelligence." Bayley (1970) concluded that we cannot predict later intelligence from the scores on tests made in the first two years of life despite the high validity which these tests may have as measures of the children's current cognitive abilities. Honzik (1976) suggested that many investigations attest "to the value of infant mental tests in the diagnosis of even minimal neurological lags or deficits."

Escalona and Moriarty (1961) noted that infant tests are relatively most effective in discriminating between those who will later show neurological and intellectual deficit and those who will not, whereas, they are less effective in predicting intelligence level within the normal and superior ranges. Nevertheless, infants judged from tests to be retarded at eight months of age are seven times more likely to obtain IQ's below 80 when tested at four years of age if they come from lower rather than higher social class homes (Willerman, Broman, and Fiedler, 1970). Ireton, Thwing, and Graven (1970) argue that socio-economic status (SES) is a better predictor of IQ at age four years than mental tests scores from the eighth month or neurological scores from the twelfth month. SES-related IQ differences were found among children at three years of age whose mental test performances had not differed at 18 or 24 months of age (Golden, Birns, Bridger, and Moss, 1971). "From the age 2 (years) to age 6 (years) there is an increase in the predictive power of intelligence tests, and after age 6 the scores tend to become relatively stable for most individuals" (Robb, Bernardoni, and Johnson, 1972). But in one study of 140 children followed from two and one-half to seventeen years of age, the average change in IQ was 28.5 points, with one in four children shifting more than 40 points (McCall, Appelbaum and Hogarty, 1973). As McCall, Hogarty, and Hurlburt (1972) have illustrated, intelligence can no longer be regarded as an "unchanging characteristic that governs nearly all of an individual's mental performance at every age."

McCall (1976) suggests that "the face validity of infant assessments is so great that there is relatively little 'mental' behavior that characterizes an infant that is not represented on these tests" and that there is no obvious external criterion against which infant tests can be

evaluated. Certainly Piagetian-derived cognitive tasks are represented in the traditional tests, as well as constituting the content of newer cognitive scales like the Casati-Lezine Scale, the Infant Psychological Development Scales, and the Albert Einstein Scales of Sensorimotor Development (Uzgiris, 1976). Although many hoped that these newer tests would prove to be more sensitive, the data available to date are not reassuring (Golden & Birns, 1976). These tests continue to be interesting primarily because of the ordinal character of their carefully sequenced tasks.

CHAPTER THREE

A NOTE ON EARLY IDENTIFICATION AND THE FAMILY

Early identification procedures tend to detect children who are mild to moderately handicapped. Typically parents of these children are completely unaware or only have a slight suspicion that the condition exists. It is a severe shock to parents when they are informed that their child is mentally retarded. The identification of a mentally retarded preschooler constitutes a critical stress factor which necessitates major changes in the family system and its family members' relationship to the community.

The impact of the diagnosis requires a re-evaluation and modification of family relationships, roles, values, expectations, and goals. Apparently, parents rapidly develop response patterns and coping mechanisms. For example, families with leukemia children developed adaptive or maladaptive responses within one to four weeks after original diagnostic confirmation (Kaplan, Smith, Grobstein, and Fischman, 1973). The effects of a diagnosis of mental retardation may stimulate similar reactions.

Miller (1968) proposed that families experience three stages in this psychological adaptation. Initially families are disorganized. The emotional impact expressed through sorrow, denial, anger, disappointment, guilt, shame, resentment, and self-pity precludes constructive actions for dealing with the problem. The adjustment phase is characterized by parents seeking information and advice for making decisions. Parents need to understand the etiology of the condition, possible treatment modes, and what expectations they can set for their child. Emotional

reactions may still be evident. Adaptation occurs when the family becomes reorganized and functions on a realistic, effective level.

Although it is helpful to be aware of these stages, there is no convincing evidence that they remain constant. Rather parental reactions are generally unpredictable and apparently influenced by factors such as their marital and economic stability, the degree of understanding of the child's condition, the severity of the condition and the exceptional demands placed on the parents, the presence of siblings, and the availability of support systems. Buscaglia (1975) suggests that parents initially need assistance in expressing and clarifying their feelings. Over the years parents will continue to need to examine and work at their feelings and receive guidance in how to handle daily living situations and solve special problems.

Not only are internal family patterns altered but its interaction with the community is also affected. Relatives and friends may unintentionally place additional pressures on the family by making well meaning suggestions which over anxious parents interpret as critical or insensitive. Parents may be reluctant to participate in their usual social activities. They may withdraw from social contacts and become too child focused. Modification in career plans may result. For example, the stress may reduce the breadwinner's job performance and effect his or her career aspirations or if both parents work, one may feel the obligation to remain at home rather than placing their child in daycare as originally planned.

Since the knowledge that your child is mentally retarded is such a tragic event, early identification procedures must be cautious to insure that the diagnosis is thorough and accurate, and staff must be highly

trained in methods of informing parents of their child's condition. A case which recently came to our attention involving a 14-month-old infant with shortening of the proximal limbs and various other congenital anomalies who was diagnosed as being mentally retarded. The parents reacted by questioning and not believing the assessment. Gradually they accepted the verdict and made appropriate plans. The child was placed in an experimental program for preschool multi-handicapped children. After considerable observation and work with the child, the teachers and psychologist concurred that the child's cognitive and social development were normal but her motor development was delayed due to the morphological condition. The parents were understandably skeptical to accept the new assessment but eventually were able to do so. The misdiagnosis was devastating to the family.

The Portage Project (Shearer & Shearer, 1972), which is a home-based program for handicapped preschoolers, uses a functional rather than categorical approach to inform parents that their child has delays in his/her development. Emphasis is placed on quickly moving into the curriculum and training parents in methods which they can employ to facilitate their child's development. Thus, rather than dwelling on the issue of "your child has a problem," the Portage approach stresses what can be accomplished to enhance the child's functioning and solve any problems the parents have with the child.

CHAPTER FOUR

THE HICOMP ASSESSMENT FORMAT

The HICOMP early identification model for rural areas includes a series of guidelines for communities and agencies interested in planning a developmental screening effort appropriate to their particular locality. The COMP-Ident Find/Screen Planning Package, in particular, serves as a resource to guide communities in organizing and conducting such early identification projects.

The guidelines comprising the early identification model were formulated via the field testing and evaluation of various screening options which were developed to meet rural needs. But in order to conduct wide-range screens within a community, many factors must be taken into consideration: a needs assessment of community resources; size of the projected screen; manpower, site requirements; advertising; mailing; transportation; and the process of screening, itself. The COMP-Ident Find/Screen Planning Package details each of those factors and provides methods of implementing various child screen options. Similarly, the Denver Developmental Screening System is used to provide an inservice, agency-training format to professionals and paraprofessionals in order to learn to screen for developmental problems on a mass basis.

General screening procedure. Despite the various options presented, a basic procedure is followed in actually conducting the developmental screening, itself. The system involves setting up information booths at shopping malls, health fairs, etc. for the purpose of talking to parents' about the importance of early identification of developmental problems. Either by previous appointment through advertising or by

walk-in, parents and children are escorted to a community room where screening booths are manned by trained personnel representing cooperating human service agencies, clubs, and organizations. Each child is administered the Denver Developmental Screening Test (Frankenburg & Dodds, 1967) in order to obtain a tentative estimate of his developmental capabilities. Often, parents are interviewed using the Denver Pre-screening Developmental Questionnaire (Frankenburg, vanDoorminck, Liddell, & Dick, 1976) beforehand, so that their perceptions can be compared with the screening results. The results of the screening are communicated subsequently to the parents, and, if needed, the possibility of more comprehensive assessment in the home is discussed. The unique aspect of the COMP-Ident screening/assessment format is the home follow-up of all high-risk children. Comprehensive developmental assessment is done in the home using the Bayley Scales of Infant Development (Bayley, 1969) or the Gesell Developmental Schedules (Knobloch & Pasamanick, 1974). Experience has demonstrated that secure, familiar surroundings compared to the distractions of a public screening enable better rapport with the child and a more reliable estimate of his or her typical capabilities. This estimate helps to confirm or refute the results of the initial screening, and expands the focus on the four behavioral domains of the COMP-Curriculum: Communication, Own-Care, Motor, and Problem-solving.

It may be safely stated that screening is without purpose unless it serves as a starting point--a "blueprint" for appropriate placement and individualized programming. For this reason, multi-agency cooperation is necessary in sponsoring and conducting such screens, but most important, in providing follow-through referral services for high-risk cases. The COMP-Ident Referral-Assessment Sequence (Figure 2) recognizes the

1.0 Referral from various sources to HICOMP

- 1.1 Physician, agency, parent, screening
- 1.2 Initial contact form completed by office coordinator
- 1.3 Form given to identification screener

2.0 Identification Process

- 2.1 Home visit arranged within 48 hours of referral and scheduled visit reported to office coordinator
- 2.2 Office coordinator schedules staffing
- 2.3 Home visit made within one week of referral
  - 2.31 Complete diagnostic evaluation permission form, demographic data form, and release of information form
  - 2.32 Administer Denver and, if indicated, developmental test (Gesell)
- 2.4 Summarization and recommendations to office coordinator within three days of home visit
- 2.5 Request send for agency records if available by office coordinator

3.0 Decision Process

- 3.1 Staff meeting held within three days of identification report (staff includes home visitor, head teacher, classroom consultant, school psychologist)
- 3.2 Decision made: Placement in program, referral to other agency, insufficient presenting problems, or insufficient information and feedback to professionals involved (office coordinator schedules restaffing for one month later; if required information available earlier, office coordinator sets up earlier staffing)
- 3.3 Parent meeting within three days
- 3.4 Response to referring agency made by head teacher within a week after meeting with parents

4.0 Program entry (within one week of referral)

- 4.1 Competence checklist (curriculum based)
- 4.2 Developmental assessment and curriculum linkage
- 4.3 Home inventory
- 4.4 Arrange for ancillary services where indicated
- 4.5 Nursing summary of medical records where available

5.0 Staffing to prescribe developmental program within three weeks of entry and after 4.0 complete

6.0 Child progress evaluation - end of each quarter

- 6.1 Competence checklist
- 6.2 Developmental assessment and curriculum linkage
- 6.3 Parent report
- 6.4 Head teacher and/or home visitor report

7.0 Staffing to review program at beginning of each quarter when 6.0 completed (staff as in 3.1 and student teachers) and feedback to professionals involved

8.0 Annual report to cooperating professionals

9.0 Exit from program and referral or placement after receipt of appropriate release form

Figure 2: HICOMP referral/assessment/curriculum linkage sequence.

the importance of providing a reliable flow from screening ⟶ placement ⟶ assessment ⟶ programming.

Comprehensive Developmental Assessment for Educational Programming

Following through on the methods, procedures, and results of screening for developmental problems, COMP-Ident has formulated a pragmatic perspective regarding the ongoing assessment of developmental skills and the planning of individualized, instructional goal-plans for handicapped preschoolers. In this respect, the COMP-Ident format advocates a competency-based or "developmental task" approach to assessment and educational programming.

Devising procedures which are capable of providing a comprehensive, functional assessment of the capabilities of handicapped preschoolers requires a pragmatic and clinical approach to diagnosis and instructional planning. Such a practical approach recognizes that the screening, identification, and ongoing assessment of handicapped children is a complex process necessitating the use of various measures in order to collect and synthesize diagnostic information from diverse sources into a meaningful educational format. The use of multiple measures ensures comprehensive analysis of a child's skills and serves as a guide to individual programming.

> . . . assessment does not exist in a vacuum, as a separate and distinct practice; it is an integral part of the total educational process (Ysseldyke & Bagnato, 1976, p. 284).

The COMP-Ident format contends that the diagnostic process must be viewed as consisting of "interlinking steps," each with distinct purposes, but each merging with the purposes of the next. In this way, the diagnostic process proceeds from the general to the specific and ensures follow through from screening to individual programming (Figure 3).

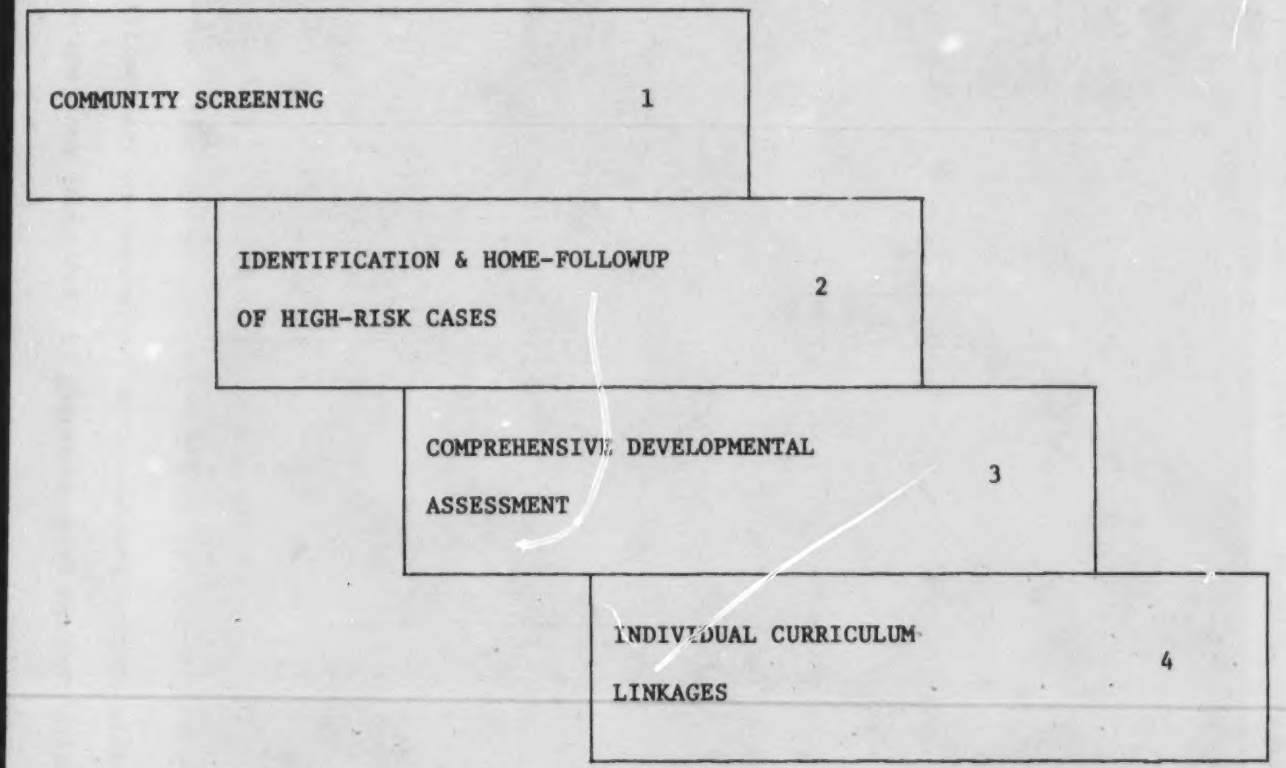
COMMUNITY SCREENING 1
IDENTIFICATION & HOME-FOLLOWUP OF HIGH-RISK CASES 2
COMPREHENSIVE DEVELOPMENTAL ASSESSMENT 3
INDIVIDUAL CURRICULUM LINKAGES 4
General Functional Skill Analysis
Specific Functional Skill Analysis

Figure 3: HICOMP diagnostic flow and linkage.

In order to operationalize comprehensive assessment of a child's functional capabilities after screening, an array of both norm-referenced and criterion-referenced measures are utilized to enable the synthesis of quantitative and qualitative information regarding a child's range of developmental skills. Appendix A lists a number of assessment methods currently available and has these diagnostic instruments arranged in a matrix, so as to aid in the selection of those which are most appropriate in terms of the child's functional skill level and area of disability. From this array of measures, COMP-Ident utilizes a Core-Assessment Battery in analyzing a child's pattern of development skills in the areas of Communication, Own-care, Motor, and Problem-solving. The use of a carefully selected battery of diagnostic measures enables the comprehensive assessment of behaviors at all levels of the HICOMP curriculum sequence (Figure 4). The following measures comprise this general diagnostic battery: a) Gesell Developmental Schedules (GDS), b) Preschool Attainment Record (PAR), c) Assessment of Children's Language Comprehension (ACLC), d) Perceptions of Developmental Skills (PODS) Profile summarized in, e) HICOMP Developmental Assessment Profile (see Appendix B). Using this battery, HICOMP focuses upon gathering both subjective and objective diagnostic information to aid in planning each child's individualized educational goal-plan. COMP-Ident strives to collect the judgments and subjective impressions of parents, teachers, physicians, and nurses about how an individual child is perceived as functioning in major developmental areas. This procedure combines subjective, observational and performance estimates in analyzing a child's level of functional capabilities across various situations. The Perceptions of Developmental Skills Profile (PODS) standardizes diverse perceptions about individual children by allowing

PODS	MOTOR DOMAIN (Level 2-3)	(DOMAIN LEVEL)
PODS; PAR; DDST	M-3-2 Fine Motor	(SUBDOMAIN LEVEL)
	M3-2.1 Draws circle, imitating adult	(TARGET LEVEL)
	M3-2.2 Draws vertical line from model	
	M3-2.3 Draws horizontal line from model	
BSID; GDS *Competency-based curriculum checklists	M3-2.4 Draws recognizable face	
	M3-2.5 Builds bridge - 3 cubes - imitated	
	M3-2.6 Builds tower 9-10 cubes	

PODS - HICOMP Preceptions of Developmental Skills
PAR - Preschool Attainment Record
DDST - Denver Developmental Screening Test
BSID - Bayley Scales of Infant Development
GDS - Gesell Developmental Schedules

Figure 4: Assessment coverage at all curriculum levels.

people to rate and profile their judgments of functional skills on a scale of 1-7. A rating of 1 denotes the absence of any perceived deficit in a functional skill, while a rating of 7 indicates the awareness of a profound problem (Figure 5). The PODS serves as a valuable supportive adjunct to standardized developmental assessment. On the basis of this screening through behavioral ratings, standardized developmental assessment can be guided to the specific skill areas which are perceived as problems. The PODS serves to guide attention to deficit areas and reflect upon whether performance measures of developmental skills represent the "typical" behavior and functional level of each child.

Forging an Assessment/Curriculum Linkage for the Handicapped Preschooler

The process of screening and assessment is devoid of practical, functional significance unless it "serves as a blueprint for designing individualized instructional programs (Ysseldyke & Bagnato, 1976, p. 284)." This pragmatic approach is reflected in the view that assessment must be imbedded within the process of instructional planning. Criterion-referenced developmental assessment exemplifies this alternative.

In order to "link" developmental assessment to individualized target objecitives, COMP-Ident utilizes a functional skill evaluation which involves a systematic sampling of skills across development levels and behavioral-skill areas, with the objective of determining the specific skill "targets" and behavioral strategies that should constitute the child's initial goal plan. Within this "developmental task" approach, traditional developmental scales such as the Gesell Developmental Schedules are perceived as criterion-based measures which sample a range of sequenced, prerequisite skills in language, personal-social, motor, and

Child ROBERT F. Age 46 MO. Sex M Data 76 - 1 - 22

Rater L. TURNER Speciality/Occupation PUBLIC HEALTH NURSE

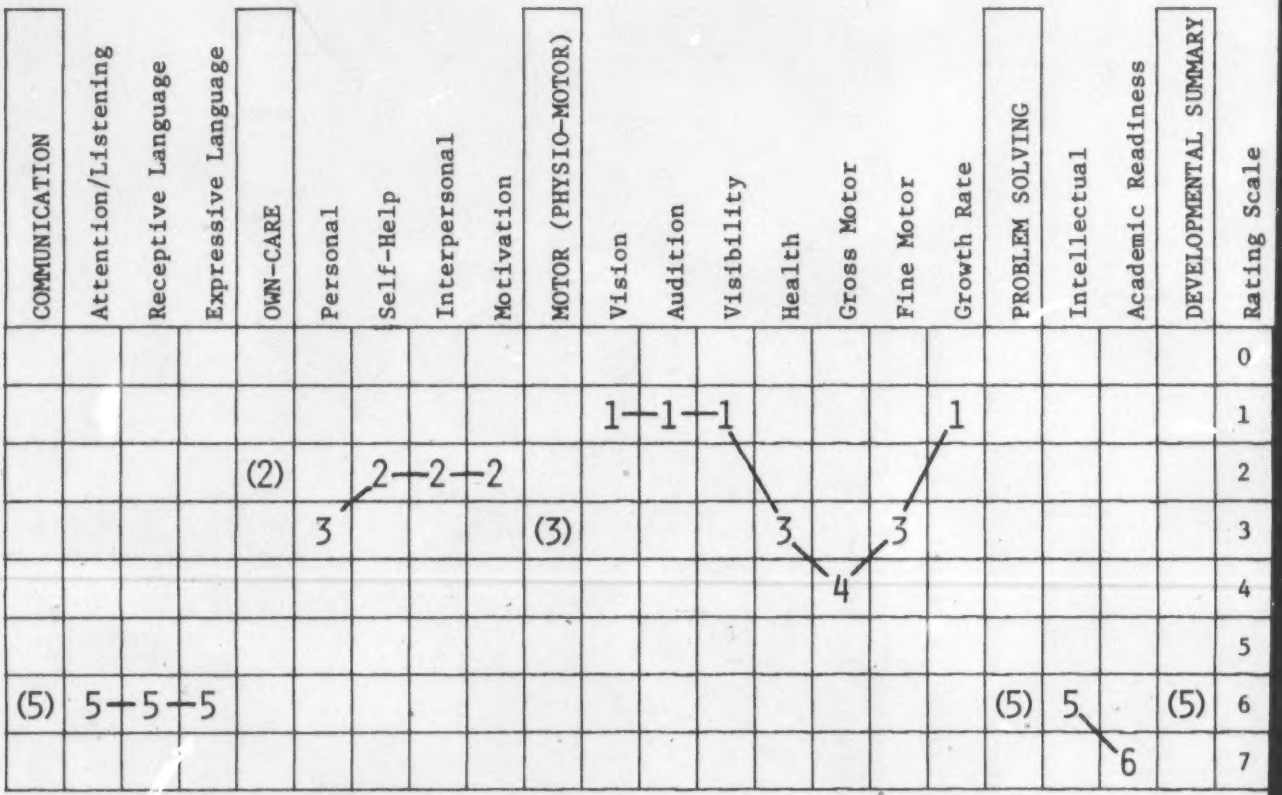

Figure 1. An example of the Perceptions of Developmental Skills.

cognitive areas. Similarly, the HICOMP Curriculum contains developmentally-sequenced and task-analyzed behaviors comparable to those appearing in traditional assessment measures: communication, own-care, motor, and problem-solving. Therefore, a child's pattern of performance on a serires of standardized developmental tasks reflects his or her individual range of functional capabilities and, thus, can be used to delineate curriculum-entry "target objectives" appropriate to developmental level and handicapping conditions. In this way, developmental assessment guides the planning of specific, educational goals and strategies. There are two major prerequisites in this approach:

1. Developmental assessment must be comprehensive and flexible, using both norm-referenced and criterion-referenced measures across various situations and behavioral areas.

2. An essential similarity must exist between the behaviors focused upon in assessment and those emphasized in structional planning.

In order to operationlize this pragmatic "link" between developmental assessment results and individual instructional programming, the COMP-Ident format utilizes primarily the Gesell Developmental Schedules (GDS) as its criterion-based measure. The comprehensive nature of the behaviors sampled, the wide age range (4 weeks - 72 months), and its potential adaptability make the scales very useful for education purposes. The GDS assesses four behavioral areas comparable to those emphasized within the COMP-Curriculum sequence:

GESELL	COMP-CURRICULUM
Language	Communication
Personal-Social	Own-care
Motor	Motor
Adaptive	Problem-solving

Essentially, on the basis of a child's performance on the various Gesell developmental tasks, his or her highest level of skill acquisition (maturity level) in each behavioral domain is determined and a sequence of "performance ceiling tasks" is delineated (Figure 6). These ceilings are then viewed as prerequisite, curriculum-entry objectives which need to be stressed in programming; then, similar objectives from the COMP-Curriculum are matched with the Gesell performance ceilings to complete the linkage (Figure 6 and 7). The steps listed in Figure 8 illustrate the linkage sequence. After the linkage has been completed and the target-objectives and strategies comprising the child's individual instructional plan have been formulated and implemented, the child's progress in acquiring deficient developmental skills is monitored, primarily, by curriculum-based checklists and behavioral analysis. The GDS subsequently provides supporting evidence of development progress.

Practical Value of the Flow/Linkage Procedure

The linkage procedure attempts to offer a practical and systematic method of utilizing existing developmental scales for purposes of individual instructional goal-planning. Such scales are employed as criterion-based diagnostic measures. As such, they help to accomplish a portion of the preschool teacher's job of pretesting children on appropriate curriculum objectives at suitable curriculum levels. Using traditional scales, pretesting can be achieved on specific language, personal-social, motor, and cognitive skills and the child's performance on target-specific test items can be generalized to similar curriculum tasks.

*	GESELL PERFORMANCE CEILING TASKS	- ±
L	follows prepositions	-
	uses 5-word form-modifiers	+
	uses personal pronouns	±
	imitates 6-10 syllable form	-
PS	buttons/unbuttons	-
	toilet dry at night	±
	washes hands/face-independently	-
	emerging associative play	+
		±
M	walks on tiptoe	-
	stands 1 foot- 2 secs.	-
	imitates cross form	-
	builds bridge form	-
A	identifies and describes pictures	-
	identifies and names colors	-
	counts 1-10 and up	+
	groups as to color, size	±

*	HICOMP CURRICULUM SEQUENCE (1977)
C	responds with correct prepositions
	uses sentences of 4-8 words
	speech elaborated with personal pronouns
	imitates 6 syllable form and elaborated combos.
O	buttons and unbuttons
	toileting bowel and bladder
	wash and dry/face and hands
	sharing play in small groups
M	walks on tiptoe
	balances on 1 foot 2-3 seconds
	draws cross-imitates adult
	builds bridge imitated
P	names objects and events
	points to and names secondary-primary colors
	counts 1-10 and up
	grouping and sequencing

ASSESSMENT---------- LINK ----------CURRICULUM

CEILING/TASKS TARGET BEHAVIORS

CEILING BEHAVIORS		CURRICULUM MATCHES
Language ceiling tasks	C3-8.5 C3-4.3 C4-2.6	Matching Communication target objectives
Personal-social ceiling tasks	O3-5.2/.6 O3-2.1 O3-2.6 O3-3.2	Matching Own-Care target objectives
Motor ceiling tasks	M3-1.1 M4-1.2 M3-2.7 M3-2.5	Matching Motor target objectives
Adaptive ceiling tasks	P2-4.5 P3-4.2 P4-6.6 P3-6.8	Matching Problem-Solving target objectives

MATCHING CURRICULUM ENTRY OBJECTIVES

Figure 6. A sample linkage sequence.

Child Andy C.A. 43 months

Test Gesell Developmental Schedules Curriculum HICOMP (1977)

TEST PERFORMANCE CEILINGS	LINK INDEX	CURRICULUM-TARGET OBJECTIVES
D.A. = 9-12 mo.	COMMUNICATION	
Orients to sounds consistently	C1-5.2	Head turn to sounds
Eye contact with speaker	C1-5.3	Gaze at speaker
Consistently repeats syllables	C1-1.8	Repeats syllables over/over
Gives objects on request	C1-3.9	Responds to request
Identifies objects when named	C2-3.1	Show me the ....."
Looks selectively at pictures	C1-5.6	Looks at pictures in book
Responds to name	C1-3.7	Responds with recognition to name
Imitates common words	C1-4.4	Imitates familiar words
Speaks 3-4 words	C2-2.4	Uses words in speech
Follows 1-level commands	C2-3.3	Follows simple commands
D.A. = 12 mo.	PERSONAL-SOCIAL	
Reacts consistently to mirror image	O1-1.7/.8	Smiles at mirror and reaches
Cooperates in dressing	O2-5.1/.8	Helps-pants and limb in arm hole
Cooperates in toileting	O2-5.8	Helps push down-pull up pants
Indicates wet pants	O2-2.5/.12	Indicates wet pants and need
Toilet/partial regulation	O2-2.15	Attempts bowel/bladder control
Eats with spoon-spilling little	O2-4.15	Spoon-food to mouth/no spilling
Drinks from cup-no spilling	O2-4.9	Drinks from cup-unassisted
Cooperates in washing hands	O2-2.3	Tries to wash hands
D.A. = 18 (18-21) mo.	MOTOR	
Kicks large ball	M2-1.12	Kicks large ball (stationary)
Stairs/up-down/holds rail	M2-1.11	Stairs up/down-holds rail
Jumps both feet	M2-1.13	Jumps off floor/both feet
Attempts cube tower	M2-2.1	Stacks two cubes
Formboard/places circle	M3-2.9	Places round obj. in round hole
Imitates horiz./vert. stroke	M2-2.8	Imitates vertical stroke
D.A. = 11-15 mo.	PROBLEM-SOLVING	
Finds hidden objects	P1-3.13/.14	Finds hidden object
Responds to directions "look at me"	P2-1.1	"Look at me"
Attends to verbalizations	P2-1.6	Attends to verbalizations
Goes to correct location	P2-3.4	Goes where told
"Show me the ....."	P2-4.2	"Show me the ....."

Figure 7. Assessment-based curriculum-entry target links

1. Match Assessment Devices According to Curriculum Characteristics and content

2. Determine Developmental Levels in Major Areas of Functioning

C.A. = 43 months	MOTOR	= 18-21 mo.
	ADAPTIVE	= 11-15 mo.
	LANGUAGE	= 9-12 mo.
	PERSONAL-SOCIAL	= 12 mo.

3. Identify "Performance Ceilings" in Each Area of Functioning

Imitates common words	±
Speaks 3-4 words	-
Drinks cup-no spilling	±
Indicates wet pants	-
Jumps both feet	-
Attempts cube tower	-
Finds hidden objects	±
Goes to location	±

4. Match Performance Ceiling Tasks to Curriculum Target-Objectives in Each Area of Functioning

TEST	
Imitates common words . . .	Imitates familiar words
Speaks 3-4 words	Uses words in speech
Drinks cup-no spilling . .	Drinks from cup-unassisted
Indicates wet pants	Gestures for wet pants & toilet
Jumps both feet	Jumps off floor/both feet
Attempts cube tower	Stacks two cubes
Finds hidden objects . . .	Looks for object out of sight
Goes to location	Follows direction to go to location

Figure 8. Adanced illustration for steps in forging an assessment/ curriculum linkage.

Also, criterion-based developmental diagnosis facilititates the creation of an individualized set of sequenced instructional targets appropriate to the child's functional levels and adapted to his handicaps.

In terms of formative and summative evaluation, such an approach establishes functional, behavioral criteria common to both assessment and instruction. Thus, the approach is competency-based and enables both teachers and school psychologists to monitor the progressive acquisition of developmental skills as well as program effectiveness. For example, after the linkage has been completed and instructional targets and strategies have been formulated and implemented, the child's progress in acquiring deficient developmental skills can be monitored, primarily, by curriculum-imbedded checklists and behavioral analysis. The developmental scales subsequently provide concurrent, summative evidence of developmental progress.

This format then establishes behavioral and developmental criteria upon which both teaching lessons and progress assessments can be mutually based. Five major objectives are accomplished through this process:

1. Imbedding assessment within instructional planning,
2. Ensuring similarity between behaviors assessed and behaviors taught,
3. Providing functional analyses of each child's range of developmental capabilities,
4. Providing a varied basis for monitoring skill acquisition,
5. Facilitating both formative and summative evaluation of developmental progress.

Supporting Data for the Linkage Procedure

Preliminary studies on the assessment/curriculum linkage system support the practical value of the method for preschool teachers involved in individualized instructional planning.

MacTurk and Neisworth (1978) compared the developmental progress of 10 handicapped and 10 non-handicapped preschoolers across a 24 week period within a mainstreamed preschool setting. Intercorrelations among Gesell diagnostic results and teacher-evaluated, curriculum skill acquisition ranged from r = .61 to .93 for both groups with a mean correlation of r = .91 for the handicapped group. The results reflected the developmental similarity between Gesell task behaviors and COMP-Curriculum objectives and, therefore, underscore the usefulness of comprehensive developmental scales as reliable criterion-based measures of educational progress.

In a study examining the reliability and usefulness of teacher-established "linkages," Bagnato (1976) offered assessment/curriculum linkage training to 20 preschool teachers. Using Gesell diagnostic results on 25 handicapped children, teachers matched obtained assessment "targets" with COMP-Curriculum-entry objectives for the preschoolers. Results indicated that within the four behavioral areas of communication, personal-social, motor, and problem-solving, the average match-agreement between test performance ceilings and appropriate curriculum objectives was r = .85. The results of teacher inservice training suggest that the linkage system offers a practical format for creating a common ground between preschool teachers and school psychologists. Given a sequence of assessment-based targets by diagnostic specialists, preschool teachers can pragmatically match a series of instructional objectives which

establish observable, behavioral criteria upon which teaching and evaluation can be commonly based.

Conclusion

Such a competency-based, developmental-task approach to assessment and programming systematizes the eclectic use of both quantitative and qualitative information in diagnosis directed toward individual instructional planning. Through this multi-phase process, the flow of events from screening through programming is ensured, and a pragmatic linkage is forged between developmental assessment and educational programming. This format enables the establishment of behavioral and developmental criteria upon which teaching lessons and progress evaluations can be mutually based. Four major objectives are accomplished through this process:

1. Imbedding assessment within educational programming,
2. Ensuring similarity between sampled and targeted behaviors,
3. Providing functional analyses of each child's range of capabilities,
4. Providing a varied basis for monitoring skill acquisition.

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APPENDICES

APPENDIX A

Currently Available Assessment Methods

Gesell Developmental Schedules (DS)	4 weeks-72 months
Bayley Scales of Infant Development (BSID)	2 months-30 months
Haeusserman Educational Evaluation (HEE)	2 years-8 years
Denver Developmental Screening Test (DDST)	2 weeks-6 years
Preschool Attainment Record (PAR)	6 months-6 years
Vineland Social Maturity Scale (VSMS)	0-25 years
Maxfield-Bucholz Scale of Social Maturity for Preschool Blind Children (M-B)	Infancy-6 years
Learning Accomplishment Profile (LAP)	1 month-72 months
MEMPHIS Comprehensive Development Scale (MCDS)	3 months-60 months
Leiter International Performance Scale (LIPS)	2 years-18 years
Hiskey-Nebraska Test of Learning Aptitude (HNTLA)	3 years-18 years
Pictorial Test of Intelligence (PTI)	3 years-9 years
Stanford-Binet Intelligence Scale (S-B)	2 years-16 years
Assessment of Children's Language Comprehension (ACLC)	3 years-6 years
Receptive-Expressive Emergent Language Scale (REEL)	0-36 months
Peabody Picture Vocabulary Test (PPVT)	3 years-18 years
Preschool Language Scale (PLS)	2 years-6 years

The matrix on the next page is an aid in determinig those measures which sample capabilities in the areas of Language, Personal-Social skills, Motor development, and Cognitive/Readiness skills, and which are capable of being adapted to the limitations of the handicapped preschooler.

Assessment Methods - A profile of methods for delineating the functional capabilities of handicapped preschool children.

Functional Domains - A matrix of capability/skill areas which are sampled by the various assessment methods.

Handicap - A range of general disability areas for which the assessment methods are not necessarily designed, yet are capable of being adapted.

ASSESSMENT METHODS	FUNCTIONAL DOMAINS								HANDICAP				
	INTELL.		COMMUNIC.		PHYSICAL		ADJUST.		VIS.	AUD.	MOTOR	SP.	EMOT.
	COG.	ACAD.	EXP.	RECEP.	FINE	GROSS	SELF	SOC.					
Gesell Developmental Sch.	•	•	•	•	•	•	•	•		•		•	•
Bayley Scales	•	•	•	•	•	•	•	•		•		•	•
Haeusserman Ed. Eval.	•	•	•	•	•	•	•	•	•	•	•	•	•
Denver Devel. Screening	•		•	•	•	•	•	•		•		•	•
Preschool Att. Record	•	•	•	•	•	•		•	•	•	•	•	•
Vineland Soc. Mat. Scale			•	•		•	•	•		•		•	•
Maxfield-Buchholz Scale			•	•	•	•	•	•	•		•		•
Learning Acc. Profile	•	•	•	•	•	•	•	•	•	•	•	•	•
MEMPHIS Comp. Devel. S.	•	•	•	•	•	•	•	•	•		•		•
Leiter Inter. Perf. Sc.	•									•		•	
Hiskey-Nebraska TLA	•	•								•		•	
Pict. Test of Intellig.	•	•		•							•	•	
S-Binet Intellig. Scale	•	•	•	•									
Ass. Child. Lang. Comp.			•	•								•	
R-E Emergent Lang. Scale			•	•					•	•		•	
Peabody Pict. Vocab. T.			•	•								•	
Perceptions of Develop. Skills	•	•	•	•	•	•	•	•	•	•	•	•	•
Preschool Lang. Scale			•	•								•	

APPENDIX B

Report Forms Building Assessment/Curriculum Linkage

Name James K. DOT 76-12-16

Assessment Purpose Winter Quarterly Assessment, 1976 DOB 73- 2-28

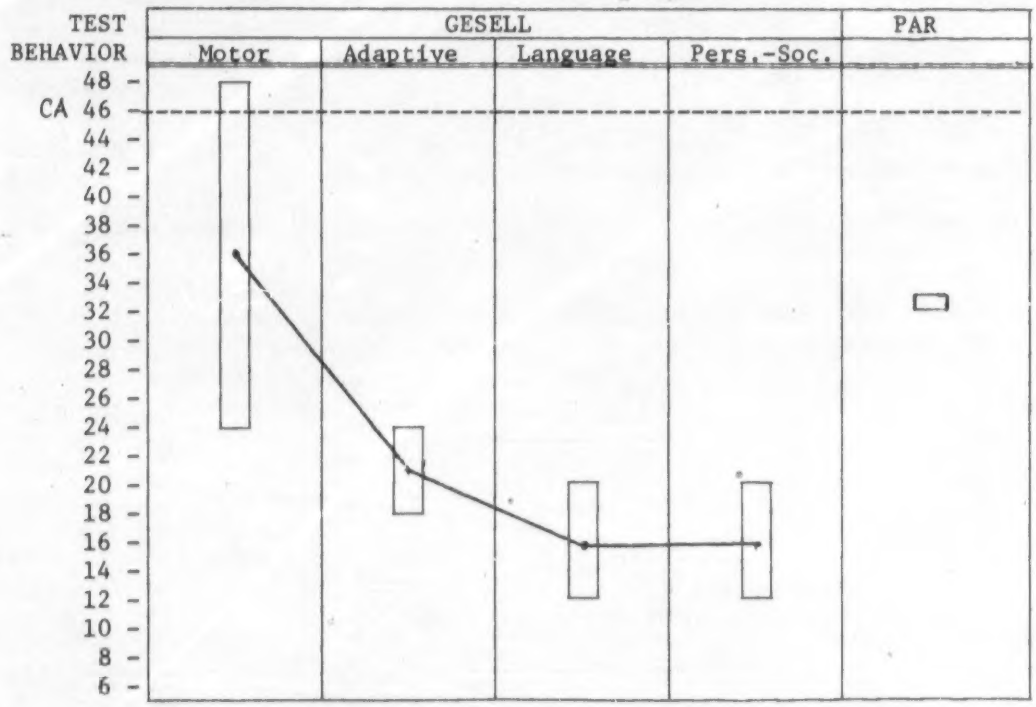
CA 3- 9-18 (46 mo.)

HICOMP DEVELOPMENTAL ASSESSMENT PROFILE

I. Quantitative Assessment Analysis

The following tests were utilized in termining James' placement and progress within the HICOMP preschool program. In this regard, quantitative indices representing age-equivalent performance are indicated in a capability profile which provides a comprehensive estimate of James' pattern of skill development.

Test	Index
Gesell Developmental Schedules	Motor = 24-48 mo.
	Adaptive = 18-24 mo.
	Language = 13-21 Mo.
	Pers.-Soc. = 13-21 mo.
Preschool Attainment Record	Attainment Age = 32 mo.



Behavior Legend: GM - gross motor RL - receptive language
FM - fine motor EL - expressive language
SOC - social adjustment COG - cognitive/intellectual

Name James K. DOT 76-12-16

Assessment Purpose Winter Quarterly Assessment, 1976 DOB 73-02-28

CA 3-09-18

II. QUALITATIVE ASSESSMENT ANALYSIS

A. Background Information and Behavioral Observations:

James, age 46 months, was assessed for the dual purpose of determining his developmental capabilities and specifying appropriate preschool educational objectives for the upcoming term.

James has a history of chronic illness involving vomiting and diarrhea since birth. His parents assumed that his delays in the development of speech and language and self care skills were due to his chronic ill health. Concern for these delays in development has prompted his parents to place him in the HICOMP program.

At present James displays a number of behaviors characteristic of autistic children. These include perseverative activities such as spinning and hitting toys, head banging, prolonged screaming and tantruming and extreem distractibility. These behaviors have competed with the development of self care and preacademic skills.

During the assessment, James was very uncooperative and distractible. Screaming outbursts and periods of head banging occurred frequently. The examiner and one of James' teachers who assisted in the assessment ignored these outbursts until they ceased. Test items then were presented only during time spans in which these tantrums were not occurring.

In general, James performed items which did not directly depend upon imitation, such as matching and block building. He did not appear to comprehend those tasks which did require imitation. Informal observation of a number of motor activities that did not require direct elicitation suggested, however, that he would have been capable of performing these tasks had he possessed the appropriate imitative skills. For this reason the present assessment of James' developmental capabilities, especially in the motor and problem solving domains, are believed to be an underestimate of his abilities.

B. Domain-Specific Behavioral Performance Analysis

The following analyses provide a comprehensive, clinical estimate of James' current range of functional skills based upon his response to a limited number of developmental tasks.

1. Communication Domain. James was observed to be able to utter polysyllable vocal sounds, repetitive single syllable sounds, and use jargon. He is reported to be able to imitate sounds and comprehend "no,"

"bye," and a few objects by name. James is reported to vocalize approximately 10 words but not "mommy" or "daddy" in a meaningful manner. When presented with a picture book, James was observed to look selectively. In general, James did not respond to test items which required direct elicitation of speech such as naming objects and pictures. It cannot be stated that he does not know the names of any of the objects presented but only that he does not produce them on command.

James' mother reported that he will vocalize and point to indicate his wants, echo the last two words of someone else's utterance and indicate that he wants "another" of something. He is also reported to be able to show and offer toys to another person, pull a person to show him/her toys, or indicate wants such as a bath or snack. James does not yet indicate that he has to urinate or have a bowel movement but will indicate to his mother that he has had a bowel movement in his pants. He does not yet verbalize his immediate experiences or refer to himself by name.

James' level of development in the communication domain lies between the 56 week and 21 months maturity levels. This level of development is significantly lower than expected for his chronological age.

2. Own-Care Domain. In the feeding situation, James is able to sit at the table but, due to his perseverative throwing behavior, his parents do not allow him to handle his eating utensils by himself. On occasion James has been observed to be able to feed himself and drink from a cup without spilling. However, because he typically throws spoons, cups, and plates, his parents feed him. When he is finished eating, James runs away from the table.

In the subdomain of toileting, James does not yet demonstrate even partial regulation. He does not indicate that he is wet but will indicate if he has had a bowel movement. James' mother has stated that she has placed him on the toilet bowl but he typically screams and will not sit long enough for a successful elimination to occur.

In the subdomain of dressing, James will cooperate while being dressed and partially undress himself before his bath. He does not yet attempt to pull on any of his garments. In the subdomain of clealiness, James does not yet complete any independent washing. When given a toothbrush, he will move it around in his mouth but not brush his teeth.

In the subdomain of play, James will offer other persons toys, pull toys across the floor, carry dolls and push a toy with good steering. He typically occupies himself in perseverative play rather than interact with others.

James' level of development in the own care domain lies between the 56 week and 21 month maturity levels. It is significantly below that which would be expected for his chronological age.

3. Motor Domain. In the gross motor subdomain, James was observed to walk up stairs alone using alternating feet and walk down stairs alone using both feet on each step. He can walk and run well without falling, kick a ball in play, walk on tiptoe, jump with both feet, and jump from a bottom stair. It has been reported that James is able to hop on one foot. Because all of the gross motor items at the appropriate age levels could not be administered to James, it is only hypothesized that his level of development in this subdomain lies between the 24 to 48 months maturity levels.

In the fine motor subdomain James demonstrated the ability to build a six block tower, place 10 cubes into a cup, dump a pellet from a bottle, scribble spontaneously and turn the pages of a book singly. He was able to align blocks in a train structure only when prompted considerably. James did not imitate any circular, horizontal, or vertical marks made on paper by the examiner. His grasp of a crayon did not approximate that of an adult. Informal observation of James' fine motor behavior suggested, however, that he was probably capable of performing many of the presented test items but not on command. James' demonstrated level of development in the fine motor subdomain lies between the 18 and 24 month maturity levels. However, his deficit in imitative skills resulted in this performance which is probably an underestimate of his true level of fine motor development.

4. Problem-Solving Domain. James was able to place circular, square and triangular blocks into their respective receptables when these receptacles were oriented to and inverted in relation to the position of the blocks. Errors in placement after the receptacles were inverted were followed by laughing on James' part and then correction. James was able to insert a square block into a slot when the block was oriented to the slot and also when insertion depended upon manipulation. James attempted to respond purposefully in tasks which required him to match geometric forms but he did not complete any of the items correctly. Competing behaviors and a deficit in imitative skills, resulted in performance between the 18 to 24 months maturity levels in the problem solving domain. This is probably an underestimate of James' true capabilities.

Name James K. DOT 76-12-16

Assessment Purpose Winter Quarterly Assessment, 1976 DOB 73-02-28

CA 3-09-18 (46 mo.)

III. EDUCATIONAL RECOMMENDATIONS AND CURRICULUM LINKAGE:

1. A toilet training procedure should be implemented for James in the upcoming term. The Azun and Foxx toileting method entitled Toilet Training for the Retarded could be conducted over three or four consecutive days in the classroom or over a similar time span in the home. This reference may be obtained from a book store, library or the examiner.

2. Dressing and undressing skills can be initiated through the use of a "prompt-fade" shaping procedure. For example, to teach James to pull down his pants, the trainer should grasp James' hands and move them down with his/her own in removing the pants. As James starts to move his hands independently, the trainer should lessen his/her own physical guidance. Increased physical guidance should be given when James stops moving his pants independently. This procedure should be continued until all physical guidance from the trainer is completely faded and James can independently pull down his pants.

3. One of the primary pre-educational objectives should be the development of James' imitative skills before any "on command" actions are attempted in training. A "prompt fade" shaping procedure could be utilized in training a number of imitative gross motor, fine motor and possible speech behaviors. Imitative activities should be widely varied so that James learns that "imitation," not the specific behaviors, will be rewarded.

ASSESSMENT-BASED CURRICULUM-ENTRY TARGETS

Child James K. Date 76-12-16

Test Gesell Developmental Schedule C.A. 46 months
Winter Quarterly Assessment

PERFORMANCE CEILINGS	LINK #	CURRICULUM-TARGET OBJECTIVES
D.A. =	COMMUNICATION	
* Vocalizes "mommy & daddy"	C-1-2.8	Uses "mamma," "dada" or equivalents with meaningfulness
* Responds to name	C-1-3.7	Responds with recogn. when name stated
* Comprehends: gives toy on request	C-1-3.9	Responds to simple signal 2/appro. beh
* Comprehends objects by name	C-2-2.4	Names several objects
* Picture card, names or points to 1	C-2-3.1	Points to pictured object
* Communication: asks for food, toilet, & drink	C-2-3.4	Makes one word requests
* Communication: refers to self by name	C-2-3.7	Indicates self
D.A. =	OWN-CARE	
* Feeding: inhibits grasp of dish	O-2-4.5	Puts spoon in dish, returns it, leaving dish in place
* Feeds self in part, spills little	O-2-4.15	Brings food to mouth without spilling
* Feeding-handles cup well	O-2-4.1	Holds cup given by adult & sips, gives back
* Feeding-inhibits turning of spoon	O-2-4.13	Delivers food to mouth using spoon
* Toilet-partial regulartion	O-2-2.15	Attempts to control bowels/bladder
* Toilet-indicates wet pants	O-2-2.5	Indicates wet or soiled pants
* Play-parallel play predominates	O-2-3.16	Occupies self unattended
* Dressing-wash & dry hands, face	O-2-2.3	Tries to wash hands
* Dressing-pulls on a simple garment	O-2-5.1	Helps put limb into clothing
D.A. =	MOTOR	
* M. cubes 8	M-2-2.12	Builds tower of 8 cubes
* M. cubes-imitates bridge	M-3-2.5	Builds bridge of 3 cubes imitating
* Drawing-holds crayon by finger	M-2-2.13	Holds crayon in finger
* Ball overhand	M-4-1.7	Throws large ball overhand
* Drawing-makes stroke imitatively	M-2-2.8	Draws vertical, horizontal &
* Drawing-imitates vertical, horiz.	M-3-2.1	circular strokes imitating adult
D.A. =	PROBLEM-SOLVING	
* Color forms: places 1	P-2-4.1	Matches on the basis of color
	P-3-4.4	Solves match to sample problems